

The Gerardo Home in San Fernando

SUPERVISORIAL DISTRICT 3 RESIDENT

What It Cost

Many homeowners begin with a 20% energy savings target.

The Gerardos' upgrade included:



Cost-effective upgrades projected to achieve at least **20% energy savings** in this home

Energy assessment	\$500
-------------------	-------

Attic, crawl space and wall insulation upgrade with air sealing	\$10,100
---	----------

Subtotal investment	\$10,600
---------------------	----------

Qualified Energy Upgrade California incentives	\$4,000*
---	-----------------

Subtotal #1 out-of-pocket costs	\$6,600
---------------------------------	---------

But the Gerardos went a step further.



Additional upgrades projected to achieve over **80% energy savings** in this home

Lennox heating and A/C system with duct enhancements and roof repair	\$16,650
--	----------

Pool pump upgrade	\$1,600
-------------------	---------

Solar panels	\$20,000
--------------	----------

Other upgrades	\$3,700
----------------	---------

Subtotal additional investment	\$41,950
--------------------------------	----------

Additional Energy Upgrade California incentives	\$4,000*
--	-----------------

Subtotal #2 out-of-pocket costs	\$37,950
---------------------------------	----------

Subtotal #1 out-of-pocket costs	\$6,600
---------------------------------	---------

Total out-of-pocket costs	\$44,550
----------------------------------	-----------------

*Check EnergyUpgradeCA.org/LACounty for current promotion.



San Fernando residents Albert and Julie Gerardo have lived in their 2,200-square-foot home built in 1953 for 14 years. They spend about \$3,300 annually for electricity and gas. The Gerardos have two daughters and a son, and two dogs. Julie's elderly mother lives in the home's in-law

unit. There's also a small pool. The Gerardos have always wanted to make energy upgrades—making their home more energy efficient and helping the environment. With Energy Upgrade California, they did!



**Energy Upgrade California
Home Energy Makeover**

1. Comprehensive Energy Assessment

To provide a complete evaluation of the Gerardo home's energy use, **Residential Energy Assessment Services (REAS)** conducted a comprehensive home energy analysis using diagnostic equipment that included a blower door. Testing showed the home was over three times as drafty as it should have been. **REAS** determined that the home needed attic and crawl space insulation, like most houses built before today's building energy codes. They also found that the condition and orientation of the roof made the home an ideal candidate for a solar electric system.

2. Insulation with Air Sealing

REAS partnered with **San Gabriel Insulation** to upgrade the home's attic and crawl space insulation and air sealing. **San Gabriel** removed the home's existing attic cellulose insulation. They installed a one-inch thick layer of foam to make sure all penetrations between the attic floor and living area ceiling were sealed before blowing in new cellulose insulation. This improved the efficiency level from R-8 to R-38 to comply with modern building energy codes. **REAS** also weather-stripped the attic hatch.

The Gerardo Home in San Fernando *(continued)*



The Gerardo's home in San Fernando

San Gabriel also air-sealed and applied insulation batts to the crawlspace walls and ceiling to an R-19 efficiency level. Now air won't leak between the unconditioned crawlspace and conditioned living space. These combined efforts reduced the air exchange rate in the home.

REAS replaced 17 recessed ceiling lights with more efficient fixtures provided by **Cree Lighting**. The new fixtures are rated by ICAT for their energy efficiency and include screw-in, light-emitting diode (LED) lamps. Attic insulation can be applied over them safely.

REAS also replaced the bathroom's ventilation fans with new Whispergreen units with built-in timers and moisture sensors donated by **Panasonic** and upgraded a window from single to dual-pane low-e glass.

3. Heating and Cooling System

Lennox Industries provided a 15-SEER heating and cooling packaged unit with rooftop and outdoor components to replace the home's existing 12-SEER unit. **NRG** installed the new system, relocating the outdoor unit to a less prominent location behind the home.

Leaks, holes and poorly connected ducts were losing over 20% of the air moving through the old heat pump's duct system, creating higher energy costs and decreasing comfort. **NRG** removed the old duct system and redesigned and installed a new air-balanced ducting system that included increased air supply return and shorter air supply ducts. The new ductwork was insulated to an R-8 efficiency level, sealed to 95% efficiency, and then buried within the attic's new insulation.

NRG installed a programmable, touchscreen thermostat donated by **Lennox**, which ensures that the system operates at peak efficiency and can be adjusted to a pre-set schedule. Now the system runs less when the occupants are asleep or away from home. **Enalysis** provided and installed a Gmeter energy management system. It works with the home's existing thermostat and power panel and allows the family to monitor their energy use and generation online.

4. Health and Safety

REAS installed an emergency gas shut-off valve to bring the home up to building energy code.

5. Variable-Speed Pool Pump

The Gerardos' pool pump was also upgraded with a variable-speed model provided by **Pentair**. Pool pumps are energy-using devices that are often overlooked. Variable-speed models can save up to 25% over models that are just a few years old.

Pool pumps are not covered as a part of Energy Upgrade California, but separate rebates are available for pool pump installations.

6. Solar Electric System

Sharp Solar provided a 12-panel, roof-mounted solar electric system designed to produce 2.6 kilowatts of renewable energy. The system was installed by **Solarcon**. Now that the home has received its energy efficiency improvements, the solar electric system is expected to produce a substantial amount of the home's total energy.



Exposed beam ceiling in living room appears to be uninsulated, allowing expensive heat gain during the hot summer days



Wall insulation falling down and missing



GreenPoint Rated Elements label improvements

GreenPoint rating and processing	\$1,600
CO alarms	\$50
Subtotal additional investment	\$1,650
GreenPoint Rated Elements label rebate and LA bonus	\$900
Total additional out-of-pocket	\$750



GreenPoint Rated Improvements

Since the Gerardos were already making energy improvements as part of Energy Upgrade California, they didn't have much further to go to get the GreenPoint Rated Elements label. **Living Green Homes** helped the Gerardos earn 45 points—above the minimum 25 points needed for the label.

GreenPoint Rating for the Gerardo home was provided by **Living Green Homes**.

Energy Efficiency—12 points

This home scored higher in the Energy Efficiency category than any other Makeover home. As a Net Zero Energy home, the Gerardo home earned 12 points for their 2.5 kilowatt photovoltaic system. Most of the remaining energy points were achieved through the Energy Upgrade California's Advanced Upgrade Package. **Living Green Homes** suggested replacing all light bulbs with energy-efficient versions.

Water Efficiency—6 points

Living Green Homes suggested several water conserving measures that would help the Gerardos save more money on their utility bills. Following these suggestions, the home's irrigation system was upgraded with a smart controller with temperature and moisture sensors donated by **Cyberain**. Now the lawn is only watered when it needs it.

REAS installed two shower control valves. This valve turns the flow off automatically once the desired temperature is achieved and holds it until water is actually needed. The Gerardos also earned water efficiency points for their existing tankless water heater and high-efficiency showerheads.

Indoor Air Quality—12 points

The air and duct sealing done as part of the energy efficiency upgrades vastly improved the indoor air quality in the Gerardo home.

The home also received a new UL 2034 carbon monoxide monitor to comply with the new code, effective in California on July 1, 2011.

Living Green Homes suggested adding a vapor barrier in the crawl space to prevent moisture from seeping into the home, which is a common indoor air quality concern. This practice also increases the home's structural durability, reducing maintenance costs.

Resource Efficiency—4 points

Living Green Homes made sure that all cardboard, concrete and metal waste created during the upgrade was recycled. This is a required part of the GreenPoint Rated process and saves waste from ending up in our landfills.

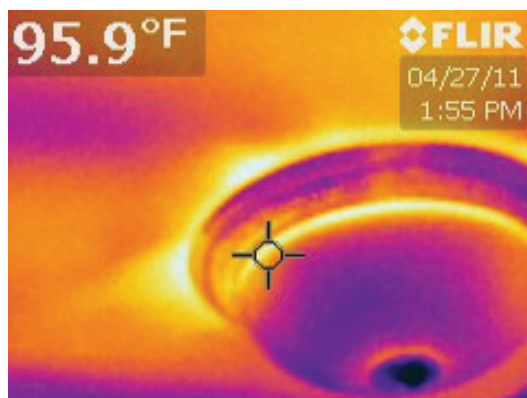


Crawl space view looking up at gaps in sub-floor, water supply and drain pipes, contributing to air leaks



Old pool pump motor needs replacement with new high-efficiency variable speed motor

The Gerardo Home in San Fernando (continued)



Hot attic air leaking into the home from ceiling electrical box; visible as white areas at fixture perimeter



Value Conclusion

Pre-upgrade	\$420,000
Post-upgrade	\$450,000
Value contribution of energy upgrades	7%

Better Communities—11 points

The Gerardo's home received points for green practices already in place that help create healthier, safer communities. These include being within walking distance of public transit and other important neighborhood services, which reduces car travel and creates a more vibrant community.

GreenPoint Rated Improvements

The GreenPoint Rated label is the mark of quality for green home upgrades. It verifies that your home upgrade was installed according to proven green standards, and can even improve your property value at time of sale. When you participate in GreenPoint Rated, you earn points for improvements that save energy, water, resources and indoor air quality.

Learn about GreenPoint Rated Improvements at GreenPointRated.com.

About Energy Upgrade California in Los Angeles County

Energy Upgrade California in Los Angeles County is a rebate and incentive program for homeowners to improve their homes' energy efficiency, save water and natural resources, lower utility bills, and create a healthier and more comfortable home through a home energy upgrade. Energy Upgrade California connects homeowners with local Participating Contractors who can complete their home energy upgrade and help them apply for rebates and incentives. Learn more at EnergyUpgradeCA.org/LACounty or call 1-877-785-2237.

MAKEOVER TEAM

CONTEST HOST AND ADMINISTRATOR

Los Angeles County Team

PARTICIPATING UTILITIES

Los Angeles Department of Water & Power
Southern California Gas
City of San Fernando Water Agency

OVERALL MAKEOVER WORK SCOPE COORDINATION PROVIDED BY:

Residential Energy Assessment Services (REAS), www.reasenergy.com

COMPREHENSIVE HOME ENERGY ANALYSIS PROVIDED BY:

Residential Energy Assessment Services (REAS), www.reasenergy.com

GREENPOINT RATING PROVIDED BY:

Living Green Homes, living-greenhomes.com

SOLAR ELECTRIC SYSTEM PROVIDED BY:

Sharp Solar, www.sharpsolar.com/
SolarElectricity.aspx

INSTALLED BY:

Solarcon, www.gosolarcon.com

HEATING AND COOLING SYSTEM PROVIDED BY:

Lennox Industries, www.lennox.com

INSTALLED BY:

NRG Heating and Air Conditioning, Inc.,
www.nrgair.com

INSULATION WITH AIR SEALING

INSTALLED BY:

San Gabriel Insulation,
www.sginsulation.com

WATER HEATER INSULATION

INSTALLED BY:

Residential Energy Assessment Services (REAS), www.reasenergy.com

IRRIGATION SYSTEM PROVIDED BY:

Cyber Rain,
www.cyber-rain.com

POOL PUMP PROVIDED BY:

Pentair Water Pool and Spa,
www.pentairpool.com

INSTALLED BY:

Pools by Ben,
www.poolsbyben.com

BATH VENTILATION FANS PROVIDED BY:

Panasonic, www.panasonic.com

INSTALLED BY:

Residential Energy Assessment Services (REAS), www.reasenergy.com